

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. *(previously presented):* A method of treating a deficiency of a Hedgehog protein in the GI tract of a subject deficient in said protein and in need of such treatment, comprising providing to the GI tract of the subject a composition that comprises a source of a Hedgehog protein.
2. *(previously presented):* A method according to claim 30, wherein the subject is at risk for, or suffers from cancer of the GI tract and said providing results in
 - (i) prevention of said cancer development, or
 - (ii) therapy of said cancer.
3. *(previously presented):* A method according to claim 2, wherein the cancer is gastric or colon cancer.
4. *(currently amended):* A method according to claim 2, wherein the ~~from a~~cancer is a GI tract carcinoma and said providing results in therapy of said carcinoma.
5. *(previously presented):* A method according to claim 4, wherein the GI tract carcinoma is a gastric or colon carcinoma .
6. *(previously presented):* A method according to claim 1, wherein the deficiency of the Hedgehog protein is an acquired deficiency.
7. *(previously presented):* A method according to claim 30 wherein the subject has familial adenomatous polyposis coli (FAP).
8. *(previously presented):* A method according to claim 7, wherein the Hedgehog protein, homologue or variant, nucleic acid expression vector, bacterial delivery vehicle, animal cell or inducing or upregulating agent, is administered in an amount effective to prevent or reverse GI tract tumorigenesis in the FAP subject .

9. (*previously presented*): A method according to claim 7, wherein the Hedgehog protein, homologue or variant, nucleic acid expression vector, bacterial delivery vehicle, animal cell or inducing or upregulating agent, is administered in an amount effective to prevent or reverse colonic adenomatous polyps, invasive adenocarcinomas, small intestinal adenomas and cancers, and desmoid tumors.

10. (*previously presented*): A method according to claim 30 wherein the source of Hedgehog protein comprises the Hedgehog protein, homologue or variant in a pharmaceutical composition.

11. (*original*): A method according to claim 10, wherein the pharmaceutical composition is suitable for oral administration.

12. (*previously presented*): A method according to claim 30 , wherein the source of the Hedgehog protein comprises said nucleic acid vector in a pharmaceutical composition.

13. (*previously presented*): A method according to claim 30 , wherein the source of Hedgehog protein comprises said enteric bacterium.

14 - 24: (Cancelled)

25. (*withdrawn*):A method for determining whether a subject is at risk for developing a GI tract tumor comprising measuring the level of a Hedgehog protein or a Hedgehog mRNA in a GI tract tissue sample from the subject.

26. (*withdrawn*):A method according to claim 25, wherein the tissue sample is gastric, esophageal or colon tissue.

27. (*withdrawn*):A method for diagnosing (i) the susceptibility of a subject to develop , or (ii) the presence in a subject of, ectopic gastric tissue comprising determining the level of Hedgehog, BMP2 or BMP4 mRNA and/or protein in a tissue sample from the subject.

28. (*withdrawn*):A therapeutic composition comprising a nucleotide sequence encoding a Hedgehog protein which composition is in the form of.

- (a) a nucleic acid expression vector; or
- (b) an enteric bacterium comprising the nucleotide sequence which bacterium is capable of secreting the Hedgehog protein when colonizing the GI system of a subject.

29. (*withdrawn*):The therapeutic composition of claim 28 which is said enteric bacterium .

30. (*currently amended*): The method of claim 1 wherein said source of Hedgehog protein is:

- (a) a Hedgehog protein or an active homologue or variant thereof;
- (b) a nucleic acid expression vector comprising a nucleotide sequence that encodes said protein, homologue or variant;
- (c) an enteric bacterium capable of colonizing a part of the GI tract which bacterium is transformed with said encoding nucleotide sequence and expresses and secretes said Hedgehog protein, homologue or variant;
- (d) an animal cell that expresses and secretes said Hedgehog protein, homologue or variant; or
- (e) a molecule or agent that induces or upregulates expression of Hedgehog protein in said subject.

31. (*previously presented*): The method of claim 30 wherein said Hedgehog protein is Shh or Ihh and said homologue or variant is a homologue or variant of Shh or Ihh.

32. (*withdrawn*): A method for preventing the development or treating a disease or condition characterized by the presence or growth of a Hedgehog protein-expressing ectopic gastric tissue in a subject, comprising providing to the subject or to the site of said ectopic tissue an effective amount of a substance that reduces the functional level or activity of the Hedgehog protein.

33. (*withdrawn*): A method according to claim 32, wherein said substance is an antibody specific for said Hedgehog protein or an antisense nucleic acid at least part of which is complementary to at least a functional part of a Hedgehog mRNA that encodes a Hedgehog protein selected from the group consisting of human Desert Hedgehog protein SEQ ID NO:1, human Indian Hedgehog protein SEQ ID NO:2, and human Sonic Hedgehog protein SEQ ID NO:3.